

SUPPLEMENT.

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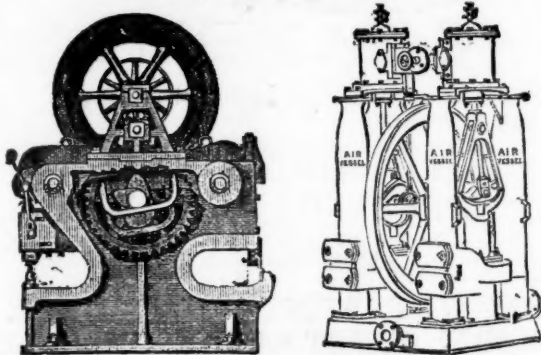
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LONDON, SATURDAY, FEBRUARY 15, 1879.

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PARIS,
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FALMOUTH,
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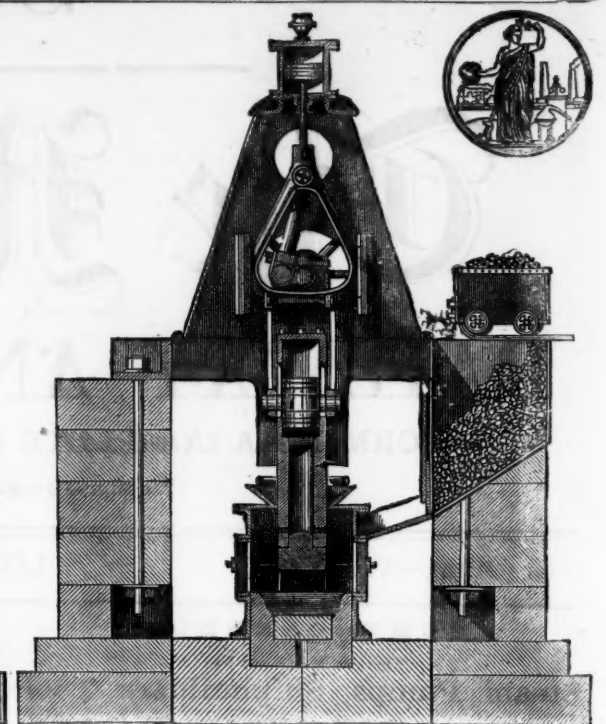
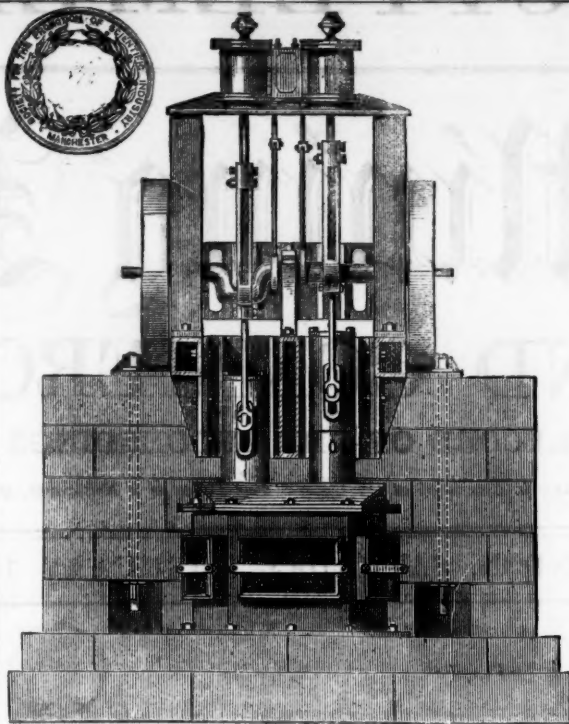
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Original Correspondence.

THE TASMANIAN TIN FIELDS.

SIR,—In the *Mining Journal* of Oct. 19 last appears a letter from Mr. Mufford in reply to mine in the previous issue. Readers of my letter must have remarked that it consisted essentially in a comparison of statements advanced by Mr. Mufford when writing on the Mount Bischoff tin district with those of Mr. Ulrich, F.G.S., in a report of an older date, showing, I think, whence Mr. Mufford had his information, which he has not the good taste to acknowledge. Mr. Mufford commenced by saying my letter was nothing more nor less than a vaunted profusion of spleen, no doubt the effect of dire disappointment, and considers that it would have been better had I kept out of the dilemma. As to the dire disappointment charge, I can assure Mr. Mufford that nothing can be further from the truth, and since he has chosen to go into the question of motives (I suppose for lack of arguments to disprove my statements), I think I can show some ground for supposing that dire disappointment had something to do with Mr. Mufford's display of spleen (I thank him for the expression), as exhibited in all his writings on the subject.

It will be remembered that Mr. Mufford had no great deal to say in reference to the tin mines of Tasmania, but nothing at all in favour of them; in fact, he evinced the strongest disposition to say all he could against the mines of that colony, some result of which was seen in a short effusion from an anonymous correspondent ("H.W.") lavishing praise on Mr. Mufford, and recommending the Mining Institute to lose no time in inviting him to read a paper before them on the subject.

It is well known that Mr. Mufford resided for some time in the colony, devoting apparently the whole of his time in watching the progress of these mines. Will it be unreasonable to suppose that he would have an inclination to secure a good tin claim. But this he does not appear to have done, although he acknowledges that some of them have paid the proprietors good profits, and, I may say, continue to do so. For example, Mr. Mufford visited Mount Bischoff at a time when the shares were freely obtainable at a most insignificant price, and there was such a chance for investment open to any man capable of judging of the value of the property as seldom occurs. Mr. Smith, the original discoverer and late director, having disposed of his shares, about half of the mine, at prices varying from 2s. to 3s. per share, not, I am informed, through any lack of faith in the venture, however. These shares at the time of my visit, not long after Mr. Mufford left the colony, were selling at 20s. each. At that time tin had declined to about 55s. per ton. I can quite understand Mr. Mufford feeling a sensation of disappointment at missing such a grand opportunity of making his "pile." Of this I am satisfied, that had he shared in the prosperity of these mines we should have heard nothing of his papers. I confess I feel some disappointment at not having visited Tasmania at an earlier date, but that had nothing to do with the cause of my writing, as I was prompted solely by a desire to correct the many misleading statements made by Mr. Mufford, and some of the erroneous opinions expressed by some correspondents in the *Journal*.

I will now take Mr. Mufford's reply to my letter *seriatim*. He commences in a style characteristic of the whole of his letter, which shows the weakness of his defence so much that I must give it in full. Having stated that after inspection I had made myself acquainted with the subject in all its bearings, he says "I wonder if this is true. If I am not mistaken his own letter will prove this to be error No. 1." I do know what he means I confess. My next error, according to him, is in saying it is impossible to read his statements without coming to the conclusion that Tasmanian tin mining is simply a hoax. No such statement being advanced by him, but that he said "Mount Bischoff is the great depository of the district, were rich in their deposits, and will continue to return a large quantity of tin for years to come." Surely he thinks that we have forgotten all that he has said concerning the question of production, upon which he has been regarded by some as a reliable authority. Mr. Mufford said that he believed they had reached the summit in the shape of returns, and a falling off must shortly ensue. Also, again at the Mining Institute, he remarked as follows: "I believe that the Tasmanian tin mines have reached the summit of their success, and that a falling off is bound soon to ensue." He also said to the meeting that in order to export tin into this country from Australia they ought not to have less than 70s. per ton. These and many similar statements I might quote naturally had the effect of deluding those at home into the belief, as they acknowledged, that the deposits were being rapidly exhausted, and that tin from that quarter would soon be a thing of the past.

In dealing with the charge of plagiarisms, Mr. Mufford says it is only as my fancy pictures it. He next asserts "I believe I read the report referred to on the Mount by Mr. Ulrich, but copied nothing from it, because my notes were made before, and had no chance of doing so, as it was simply handed me to read." This confession is a good deal more than I could have expected, although he is unwilling to say that he, or anybody else, copied the "bold extract" I dealt with in my previous letter. It really is amusing in the highest degree to read that Mr. Mufford is not sure that he read Mr. Ulrich's report, but he has a distinct recollection of not having made any of the suspected extensive extracts from it, because he is positive it was only handed to him to read. If there were room for the least doubt on this question before it certainly cannot exist now. As for his remark that everything at the Mount is so plain that no one could fail to see them, or use the same or very similar language in describing the outlines of that district, to my mind nothing can be more erroneous, and he only says so because his is identical with Mr. Ulrich's. The mineralogical and geological terms used by Mr. Mufford are precisely the same as those used by Mr. Ulrich; and although used so profusely in describing Mount Bischoff, his report is totally destitute of them when he describes other districts. Doubtless the result of his not being fortunate enough to have a report on them by Mr. Ulrich handed to him to read. It appears to me an utter impossibility for two men to use precisely the same terms in describing such a combination as we find here, however much they might agree in matter or meaning. I may here remark that Mr. Ulrich's well written report on the Mount is widely distributed throughout Tasmania, so much so that I had not been in the colony 24 hours before I was in possession of a copy. (By the way, he does not say he has not got one.) Yet Mr. Mufford, who resided there for some time, and associated himself with the mining district, has the coolness to say he copied nothing from it because his notes were made before, notwithstanding his notes were not used until quite recently, or nearly three years, according to his own statement, after he believes he saw the report. Poor logic this. In the next question Mr. Mufford also divulges his guilt in the plainest manner. He says—"As to the outcrop not being noticed by me as rich in ore contents, I stated the large deposits of tin ore found at the Mount can be traced to their source, which is known as the north and south lodes. The fact mentioned by me that both ore bunches were found to become poorer from the top downwards is sufficient reason for saying nothing about it." This is his excuse for saying nothing about and completely withholding from the public the all-important fact, the correctness of which he now acknowledges, that there is at Mount Bischoff an extensive outcrop, rich in tin, the extent of which is not proved in length or depth, in two separate places. This is what Mr. Mufford calls being careful not to insert anything but fact in his report. His saying that the alluvial deposit can be traced to this source is really no answer to my question why he did not describe things as they were. Although now, in his usual equivocal style, he would like to make it appear that this is sufficient reason for not doing so. But false evidence is always good against itself, of which there are so many examples in Mr. Mufford's writings. Again, he must have forgotten that he said in his report "that lodes found in this district, like all other known rich districts for stream tin, are of no account." Therefore the remark that the rich deposits can be traced to their source north and south lodes must mean that they are not rich in tin, but are of no account.

In further proof that he had no other intention than to bamboozle, I quote from the report of the Mining Institute meeting, given in the *Mining Journal*, wherein a gentleman is said to have asked for information concerning the extent of the deposits, to which Mr. Mufford replied as follows:—"They could not get far into the ground on the west before they reached the sandstone—not a very promising stratum. On the east they met with the clay-slate bottom, and had porphyry rock (here he should have added, with two rich outcrops of tin) staring them in the face, while they entered on the south side and took away the stuff just as it came to hand." One seldom reads such a delusive statement as this, and nothing appears plainer to one who knows the actual circumstance of the case, that it was only uttered with the twofold view to deceive, and of obtaining what is said to have followed—loud applause. Mr. Mufford asks if I know how many claims are included in the N. B. V. Co.'s lease. There were three pointed out to me. In reply to the theory advanced by Mr. Mufford as to the Waratah fissures being filled up by disintegrated porphyry, he does not attempt to support his opinion by a single observation, but as usual totally evades the question by saying that he contends the Waratah section and workings are outside the crescent-shaped dyke altogether in a south-east direction, and are not part of it. No one knows better than he does that I did not say the main dyke was in this claim, but it borders very close on the boundary of same, and what I said was that these fissures are nothing but branches from it. These ramifications are distinctly seen close to the boundary, and the same remarks as previously made by me are equally applicable to the Stanhope claim also. Having been down in and examined them to the deepest point yet attained—a shaft 180 ft. on the underlay—I am in a position to rebut any such statement as that made by Mr. Mufford by the most conclusive evidence. Suffice it to say the fissures consist of perfectly solid porphyry, and not the slightest trace of alluvial. These fissures in the Waratah and Stanhope claim are in many cases plainly traceable to the main dyke, and are, in fact, its ramifications of the same mineral composition, and evidently formed at the same time.

To show the effect of Mr. Mufford's delusive remarks, I quote from a letter appearing in the *Mining Journal* shortly after he read his paper, wherein your correspondent, after extolling Mr. Mufford's paper in the highest degree, remarked on what he said appeared to him the legitimate deduction from the information given. "It appears," he goes on to say, "that barring the Mount Bischoff Company's Works all the others are remarkably ephemeral. These facts seem to show how diligently they are working their deposits, and being all surface deposits, how rapidly it must all come to an end. The falling off in the production of the only tin-producing mine in Tasmania, which is at all likely to extend its existence beyond a few months, points pretty clearly to a rapidly failing production, and to a corresponding improvement in the value of tin." These were honest deductions I must admit, but the premises being worthless are consequently at fault.

The next point Mr. Mufford says he grants to have been a mistake, but says it is only so as appears in print, and was no doubt done in copying for the Press. It should, he says, be read thus—"The whole of the detritus is a tin-bearing porphyry and clay-slate (the latter highly charged with sulphide of iron), closely cemented, and occasionally requiring blasting." This is a statement that has several times appeared in print, even quoted by his backers, in contradiction to negative evidence, and yet he has not the consistency or common honesty to tell them he was wrong, consequently they were altogether in error. Mr. Mufford has now made the matter even worse for himself. To say that the clay-slate is highly charged with sulphide of iron is simply preposterous. Having removed the sulphide of iron, which he described as cementing the drift to the clay-slate, cannot he see that he leaves no cementing material to effect that result. Let me tell him that it is oxide of iron that cements the drift in places, and that mudic is not to be found in or associated with the alluvial, while the clay-slate of Mount Bischoff is as free from it as that of Cornwall. He has, therefore, only wriggled out of one mistake into another in his endeavour to rectify his original blunder.

Mr. Mufford next remarks that I have strayed from the truth by saying that he visited the Mount when the stamps were at work. I was informed when there that he paid his visit about the time it commenced working. However, it is a matter of little moment whether he was there a little before or after—he evidently failed to comprehend the value of the property. He next says, "One other remark about what my friend calls 'bosh,' as to the formation of tin on the faces of the granite, I am of the same opinion still." Here we have another example of evading the question. What I said was this—Mr. Mufford states that "in the colonies a lode means a run of wash dirt or sand mixed with tin ore in any form," and that the alluvial tin "was not formed in or washed from lodes." I do not think a better word than "bosh" could be found to describe the former part of this question; and, as Mr. Mufford is evidently ashamed to repeat it, I presume he thinks so too. With regard to the latter treating of the source of the alluvial, he says that this does not apply to Mount Bischoff, as that is in the clay-slate. The fact is, Mr. Mufford knows and states that the tin at the Mount, which is in the killas, is lode tin, but not being aware of any lode being discovered in Tasmania in connection with the granite, he falls into the error of supposing the tin was not formed in or washed from lodes. I can assure Mr. Mufford that tin lodes have been discovered in that colony in connection with the granite, and to which source the alluvial in those districts can be traced.

JOSEPH PRYOR, F.G.S.

Moonta Mines, South Australia, Dec. 26.

RICHMOND MINING COMPANY.

SIR,—I have read the letters of "Investor" in the *Journal* of the 1st and 8th inst., and as he is so well up in arithmetic I would like him to work out at his leisure the answer to the following question:—If the Richmond Mine be bad because it produces dividends how much worse would it be if it produced none? "Investor" wants to make it appear that the directors cannot pay dividends, but I will remind him of a fact which he seems to have forgotten (if ever he knew) that the dividends paid in 1878 amount to 2s. 15s. per share. Another dividend of 10s. per share was paid last week, and we have it stated on the authority of the directors that there is enough profit remaining from last year's working to pay the debentures falling due in March. The above are facts and results which I value more than the figures of "Investor," and which have been obtained in the face of great and unlooked-for disasters at the mine by flood and fire, which have entailed not only a great loss of time and money, but also a proportionate loss of earnings. According to the opinion of parties whose statements are perfectly reliable and trustworthy, the Richmond is one of the most valuable properties in the mining market. The shareholders should not sacrifice their holding in a mine which, notwithstanding the figures of "Investor," has got a brilliant future, a future which, if I am not mistaken, "Investor" wishes to take undue advantage of, but in vain is the net spread in the sight of any bird.

A SHAREHOLDER.

RICHMOND MINING COMPANY.

SIR,—During the controversy that has been and is going on in your valuable *Journal* as to the merits or otherwise of the property held by the above company, I have failed to meet with any comment on what appears to me the most vital question—the real value of the shares under present circumstances. Will you allow me, then, to supply, if I may presume to say so, the "missing link" in the question? Now, the number of shares is, I believe, 54,000, and the average price of them about 10s., so that they represent a capital of 540,000l.; and in order to pay up this sum in the shape of dividends of 10s. per quarter it will require a space of five years. But we know that the expenses of the company have hitherto amounted to upwards of two-thirds of the produce of the mine, so that in order that the said mine may produce the sum of 540,000l. clear profit it must produce ore to the enormous sum of 1,620,000l., leaving out of the question accidents and other unforeseen circumstances, and impending lawsuits, which may have the effect of crippling the company. What, then, are the present prospects of the under-

taking? Do they justify the hopes that the mine will continue productive for any number of years? I fear not.

Taking the figures of the agent of the company, as presented to the shareholders lately, the ore or reserve now in view is valued as 34,000 tons, and taking the average of 10s. per ton we have 340,000l. for the next 12 months, deducting from which two-thirds for expenses, we have 113,334l. for dividends—that is, for the next 12 months the present investor is pretty sure of receiving 2s. for every 10s. he pays, but beyond that period of time there is at present no certainty whatever of the mine continuing to pay. There is no reserve fund to fall back upon, and very little working capital, if any, so there is absolutely nothing certain as to the mine paying a farthing beyond the present year. Under these circumstances, the shares are worth about one year's purchase—about 2s. Of course things may alter for the better. It is for the investor to consider whether or not the present price of the shares offers a fair chance of his investment turning out a profitable speculation.

PRUDENCE.

RICHMOND MINING COMPANY.

SIR,—With your permission I would like to ask "Investor" how many shares he holds in the Richmond, and state the price he will take to clear them out for prompt cash. As I want to buy in the cheapest market I think it only right to draw his attention to his letter of the 1st inst., in which he expressed his opinion that 9½ to 9¼ was too much.—Feb. 11. A YORKSHIRE SHAREHOLDER.

AMERICAN MINING—THE COLORADO TERRIBLE.

SIR,—The New York Engineering and Mining Journal of Dec. 28 contained the following:—

It is whispered among those who are "generally well informed" on such matters that a "job" was put up upon the English investors in the matter of the Colorado Terrible Stock (or Colorado United, as it is officially styled), sold in London the past summer; it is even hinted that some of the officers of the company were not wholly ignorant of the nature of the "transaction." It will be remembered that early in the year Colorado United Stock was selling in London at over 7s. per share, to which figure it had been rapidly advanced under glowing official and non-official reports from the mines, while the American holders were unloading on the London market. Since the American interest was reported as sold out (for about \$400,000) in August, the stock has rapidly declined, till it is now quoted at 2½, and the reports of a "job" have come to be circulated. The English had already an unfortunate experience in Terrible, which they bought at a large price, and then had to buy again to get a title. If the rumours current are well founded, we have here another example of how the foreign interest in American mines is destroyed, and the whole industry injured by disreputable practices.

As your correspondent for many years back, I think I have sufficiently proved my friendly disposition towards English interests on this continent, sometimes giving timely warning of foreshadowed evil; and not only in your esteemed *Journal* did I lift my voice in favour of these interests, but I dared to clamour in the press of this country for fair play to be conceded to these interests when endangered, as in the Eureka-Richmond lawsuit (compare New York Mining Record, Nov. 22, 1877, and March 14, 1878), at a time when to do so resulted in severe censure by the press of this country. I thus hope to deserve the credit to act in good faith when I again take occasion to express with regard to such interests in order to prevent new losses to those interested.

In the special case of the Terrible, or Colorado United Company, my position is also well defined by former reports to you. I drew the attention of your readers as early as April, 1876, when reporting on the Maxwell Land Grant and Railway Company's affairs, to the position of one of the main promoters of this undertaking, which was introduced to the European financial public. I also warned the shareholders in the Terrible timely of the consequences of their agreement with the proposition made to them. I thus am well protected by antecedents from the suspicion of acting in the interests of these gentlemen or of their clique, and thus may venture an advice based on full information in the premises. Colorado and Denver in its population and in the general disposition of the business public have more similarity with California and San Francisco than any other state and city I know of. The prominent men there have developed a certain degree of jealousy of the Comstock clique, and have come to the conclusion that though there be money in mining, there is more money in well-directed stock gambling. To compete with the knowing clique in San Francisco would not be very promising. Denver as yet has too little home capital to make it a fruit-bearing field for large stock gambling transactions. One of the parties had already had some experience in the easy way European capital could be extracted. Thus the Terrible was selected as a connecting point; the blackmailing transaction was set to operate. He went personally to England, and found a disposition to enter on his propositions with part of the board of directors, which largely surpassed his boldest expectations, and made him consider the total as a cheap bargain. One of the cashiers of the First National Bank of Colorado then went to London and unloaded the stock on English shoulders, and quite a comedy was played before the public, one gentleman being used to proclaim the mine fabulously rich on great local authority, but the latter snubbing the good-natured Englishman to whom matters were dark in quite an uncivil way, thus giving the appearance of total disinterestedness in the swelling of value of stock.

About so far the matter has proceeded at present. The public must be prepared for news depreciating the stock still further, and especially on some more accidents, unless a complete reorganisation takes place in the total administration—home and foreign. The majority of stock is at present in England and in the hands of many not connected with the previous history of the mine. An extraordinary general meeting of stockholders will reveal the fact whether the old corrupt body prevails which entered on the doubtful transactions, or whether there has come in new vital power sufficient to recuperate from the rottenness of previous administration. If the first is the case, no advice will avail anything; the stock will be made to fall to a nominal value, and be gobbled up by the Denver clique again, maybe to repeat the same game over and over again. If there be a majority of sufficient vital power to do away with an administration contaminated by the suspicion of foul transactions the property may be saved to not only the present owners, but they will have in their own hands the best possible chance to make their mine the source of continual and large dividends. I know the property, and whatever may be the statements at present with regard to it, it is one of the best properties on this continent, deserving a most energetic development, and able to sustain such development simultaneously with dividends. But for utilising this chance their local administration must cease to be a tool in the hands of intriguers, and be so constructed that there is an eye in it to see through the stratagems of their false friends; and this cannot be achieved unless the Augean stable at home is thoroughly cleaned. Under an administration which orders the governing spirit of the concern, there is no salvation possible any more. These are strong expressions, but what would it avail to withhold them, they being in no way stronger than the facts. If there should remain doubts whether this be so, the stock books of the company should tell a transparent tale.

Before closing, permit me to repeat what, when once setting the Clifton Company's matters into proper light, I had occasion to observe. English interests in this country will suffer severely as long as the local administration is considered as a welcome opportunity for nepotism. Well should these interests always be represented by a party possessing the full confidence of a majority of stockholders and board; but the local administration should be in the hands of a board of superintendents, of which each should have its special department, as in the Terrible case—one the accounts (necessarily the man to be sent out from England), the other the mine, and the third the dressing works. No liability for the company should be contractible but by the joint signature of all three, and though each should report on his department specially no report should be sent forth but with the signature of all three. The mine and dressing works should account one to the other like strangers, and sales of ore and concentrates require the assent of all three, or a majority of superintendents. No increased salaries are required for the purpose, but a percentage in net profits should be accorded to the superintendents, and their contracts to be for three years at least, no two of these contracts ending in the same year. With at least one of the three, better with two, a *conditio sine qua non* should be a full acquaintance with American customs, American law, and American inclinations, besides competence in his speciality. The

Terrible Mine offers the advantage before thousands of other mines in Colorado, that its ore is mechanically concentratable, an advantage which was at the time duly recognised by Mr. Neil, but of which at no time the full benefit was derived to the company. There is no necessity of losing the winter months in the dressing works, but in order to utilise them the water used in the dressing must not be permitted to escape, continually carrying off a certain percentage of valuable parts, but the water must be continually used over and over again, whereby the tailings and deads become controllable after settling. The water continually used and re-used, with a requirement of a very small fresh supply, can be very easily kept under freezing point, especially at present, when coal comes by rail to Georgetown. In this way the dressing works would be able to keep up with a large production of low grade ores, and dividends could be kept up regularly. In the low grade ores, as in the larger comparative quantity, consist the best guarantee for a continuity of dividends, and, therefore, these ores should be worked with as large a capacity as possible, and not sporadically only, as has been the case under all administrations up to the present day. The writer does not advance theory here, but by a long individual practice knows that winter work is feasible at the altitude of the Terrible under the conditions specified, and that, though not with the same success as during summer, though at somewhat increased expense comparatively, the dressing works can run all winter, day and night, and do profitable work. Many works similarly situated do run so. With an administration so constituted, the dressing works so arranged, with the publication of weekly authenticated reports, so as to prevent underhand gambling in the stock by officers, the Terrible Mine is able to keep up and to increase dividends even on the inflated stock of the Colorado United, and simultaneously to develop vigorously into a property of until at present unexpected value.

F. M. F. CAZIN,

Mining and Civil Engineer.

Bernalillo, New Mexico, Jan. 18.

THE NOUVEAU MONDE GOLD MINING COMPANY.

SIR,—I beg leave for the information of the shareholders, and in answer to various enquiries, to state that this company was established in France in May, 1850, under the French law of Commandite, by which the liability of each shareholder is strictly limited to the amount of his shares, and these shares being paid up in full on allotment, and being to bearer, are not subject to any call or registration, and no deed has to be signed, consequently the shareholders do not and will not incur any liability whatever beyond the amount of their shares. I beg to state, also, that the reports received from Venezuela from local engineers and from the agent of the company respecting the property are of a very encouraging nature; the operations have developed very rich lodes, and samples of gold quartz taken therefrom and brought to London by Mr. François Battistini, who has just arrived, are very rich, and can be inspected at the offices of the company.

Arrangements have been made for an eminent English mining engineer to proceed immediately to Venezuela in order to report on the property. It may not be out of place for me to add that the mines of the Nouveau Monde Gold Mining Company are adjoining the celebrated Callao Mines, the fabulous success of which has been almost unexampled. Reports of local engineers and of an Englishman, the statutes of the company, and gold quartz (samples) are open to inspection at the offices of the company, Lombard House, George-yard, Lombard-street.

F. PAGANELLI,

Managing Director.

Lombard-street, Feb. 13.

PENNSYLVANIA RAILROAD MORTGAGE BONDS.

SIR,—In my letter in last week's Journal I pointed out these bonds as being a really good investment, and showed by comparison the difference in price of several American railroad bonds, and which were standing at 5 to 20 per cent. higher than the Pennsylvania Railroad Bonds at that time last week. This week I give a few more examples. The Alleghany Valley Bonds are quoted 106 to 107; the Union Pacific Railroad Bonds, 113½ to 114½; Chicago and Alton Railroad Bonds, 109 to 110; Erie Trust Certificates, 105 to 106; and the Reconstruction Trust Certificates for six coupons funded, 114 to 115. These prices are from 4 to 12 per cent. higher than the Pennsylvania Railroad Six Per Cent. Sterling Mortgage Bonds, which are still to be obtained at 102 to 103, with the accrued dividend from January 1, 1879. The bonds are as convertible into cash as readily as any first-class Government security quoted on the Stock Exchange, and they are superior for safety to any banking corporation where the current rate allowed for deposits is 2 per cent. per annum. An investor purchasing the Pennsylvania Railroad Sterling Bonds at the present price of 102 to 103 gets nearly 6 per cent. for his money, with the certainty of an advance in price.—Feb. 13.

B. E.

THE MINERAL WEALTH OF SPAIN—No. I.

SIR,—Spain in her decadence (as she is at present generally qualified, when compared with several other European nations, from causes which may probably be looked for within herself) still has within her the power of again resuming her position and status in the scale of nations by the development only of her own natural resources. Amongst them—as a practical one—that of her great mineral wealth on a steady and ever-increasing basis, thereby reducing her pecuniary liabilities as a nation, filling her exhausted treasuries, enhancing her trade, commerce, and manufactures, and again creating for herself a name for stability and wealth.

The preservation of her mineral resources is owing in a great measure to the fact that the whole of the subsoil is State property, and that at the time of the discovery of the rich mines of Peru, Chili, Bolivia, and her other South American colonies decrees were issued refusing for a period further grants of mining property in the Peninsula, closing the silver and galena mines then existing, and ordering the emigration of Spanish miners to the New World.

These closed mines were duly recorded, and the records were archived; but during the stormy revolutions through which the country has passed, and the wanton destruction of the archives by the French invaders at the beginning of the present century, the records and even the traces of many of the richest have been lost, and nothing remains except the district to lead to their re-discovery. Mines worked, too, in this country by the Carthaginians, Phoenicians, Romans, and Moors were by these latter at the time of their expulsion from the country closed, and it often happens that the miner in modern discoveries finds ancient workings at a depth even of 150 metres (as has lately occurred in the Cartagena district in a galena lode), bearing within them sufficient evidence to show during what epoch and by whom they were worked.

There is no province in Spain to-day which has not its mineral wealth to some extent developed, with mines opened, and some result obtained in their working.

The different minerals found in each province only requiring intelligence in working and a relatively small outlay of capital to fully develop them with advantageous results are as follows:—Alava, lead, zinc, lignite, asphalt, and salt; Alicante, gold, galena, lignite, and salt from the salt-pans of Torrevieja; Almeria, iron, lead, galena, silver, copper, zinc, manganese, and salt; Badajoz, iron, antimony, lead, galena, and phosphorite; the Balears, lead and lignite; Barcelona, lead, salt, iron, and lignite; Burgos, iron, argeniferous copper, manganese, salt, soda, coal, and petroleum; Caceres, phosphorite, lead, zinc, blende, and copper; Cadiz, sulphur; Castellon, lead, zinc, cobalt, and iron; Ciudad Real, lead, galena, argeniferous copper, mercury, antimony, and coal; Cordoba, iron, lead, and coal; Coruna, copper, iron, and manganese; Cuenca, salt springs; Gerona, iron, lead, galena, argeniferous copper, antimony, coal, and lignite; Granada, lead, argeniferous copper, and zinc; Guadalupe, iron and silver; Guipuzcoa, iron, galena, zinc, blende, and lignite; Huelva, copper and manganese; Huesca, salt, anthracite, and cobalt; Jean, lead; Leon, iron, coal, cobalt, copper, nickel, galena, auriferous quartz, and marble; Lerida, lead, zinc, salt, and lignite; Logroño, iron and salt; Lugo, iron; Madrid, galena, argeniferous pyrites, gold, copper, and soda; Malaga, iron and lead; Murcia, iron, lead, galena, copper, zinc, sulphur, gold, and silver; Navarre, iron, lead, zinc, argeniferous copper, salt, and lignite; Oviedo, iron, lead, copper, zinc, mercury, cobalt, coal lig-

nite, manganese, and gold; Orense, tin and cobalt; Palencia, coal; Pontevedra, tin and iron; Salamanca, Bohemian topaz or hialine quartz; Santander, iron, lead, copper, zinc, blende, lignite, and coal; Seville, iron, lead, copper, silver, manganese, and coal; Soria, galena; Tarragona, iron, lead, and sulphate of barytes; Teruel, iron, zinc, sulphur, and lignite; Toledo, iron, lead, galena, marble, soda, rock-salt, and kaolin; Valencia, iron, copper, galena, and mercury; Viscaya, iron (the celebrated Sommorostro deposits being the most important), lead, zinc, and copper; Zamora, tin and antimony; and Zaragoza, salt.

Excepting the mercury of Almaden, the lead mines of the Linares district, the silver mines of the Sierra de Almagrera, the copper pyrites of the province of Huelva, and the iron ores of the Carthage, Marbella, Sommorostro, and Galdames districts no regular workings of importance have been opened in any of the present existing mines. These have, as a rule, been discovered and without rule or regularity opened by persons who neither possess the will nor the power to work them as they should be worked, and it is very surprising that any beneficial results are obtained. Were they but intelligently and steadily worked they would undoubtedly supersede in value those of any other country in Europe.

JOHN ARTHUR JONES.

COATING AND PROTECTING IRON.

SIR,—It must have been apparent to most persons who have visited mines that the manner in which the iron and other metal work is exposed and neglected is scandalous—anything which is not in actual use at the moment is left to rust, the natural consequence being that when a similar article is required at a future time, either a new one has to be bought or the old one repaired at a cost that is almost as great. Even the ironwork of the sheds is frequently so rusted that the scales can be picked off with the finger-nail, and the piston rods and other portions of engines left idle for a few months are permitted to become corroded almost beyond recovery. Now, with regard to the bright portions of machinery, there is, I admit, no available remedy except keeping it cleaned and oiled, but for bed-plates, tanks, and all the ironwork about the various buildings the application of a protective covering would be inexpensive, would preserve the property while the mine is at work, and would keep it in more saleable condition when operations are suspended. Upon a recent visit to Anglesa I was much struck with the neglected and dirty appearance of everything forming part of the plant, and as there is said to be a movement reconstituting the concern for about the sixth time, I think incoming shareholders and existing shareholders, before they part with any more money, should have the whole plant valued by an independent person—say, someone nominated by Harveys, of Hayle, and Hathorn and Davey, of Leeds—and give fully-paid shares to present holders for the amount of valuation, and no more, asking them at the same time for working capital in the shape of subscription for the remaining shares.

But my object was not to refer to the finances of the mine, but to point out how much more saleable the place would have looked had greater cleanliness been observed, and to direct attention to an invention of Major Crease (a name not unknown to miners), of Eastney Barracks, for protecting iron, and which would be very useful about mines. It is cheaper and more durable than paint, and when once applied is a very complete protection; this cannot be doubted when it is stated that he uses Portland cement stuck on with adhesive composition, such as "No. 1 composition," that is, pitch dissolved in naphtha or dissolved in marine glue (Hay's or Jeffery's), or Crease's anti-corrosive paint. The Major states that the Roman, Portland, or other like cement to be applied before the adhesive coating dries must be finely powdered before being wet mixed. If it be desired to give a thicker protecting layer he allows the adhesive coating to dry, then lay over it another coating of No. 1 or of dissolved marine glue, or a coating of tar, and over this second coating before it dries he applies the finely-powdered wet mixed Roman, Portland, or other like cement. Over the last coating of adhesive substance when dry he sometimes lays a coating of Roman, Portland, or other like cement, finely powdered and wet mixed, with or without a salt such as magnesia, nitrate of potash, chloride of sodium, common soda, or other salt, hereinafter called salt, which will assist the cement to set. After the cement has set he applies as a second similar coating of cement wet mixed, with or without a salt, which he lays on thickly. When this has set the cement may be silticated by applying over it a silticating solution, such as a silicate of soda, silicate of potash, or other silicate. Or instead of silticating the cement after it has set, as just described, he may when first mixing the cement omit the salt, and mix with the cement a solution of silicate of soda, or of potash, or other silicate. This mixture he applies over the dry coating of adhesive substance.

The cement coating can when desired be waterproofed with a coating of either No. 1 or dissolved marine glue, and then has a really clean and attractive appearance, but whether Crease's or any other method of protecting iron be used I feel sure that quite an important amount of money would be saved in the course of the year at almost every mine if greater attention were paid to order and cleanliness, and to the prevention of the lamentable deterioration of property which now occurs.

SHAREHOLDER.

Southampton, Feb. 10.

HAULAGE BY ENDLESS WIRE ROPES.

SIR,—Some years since there was an interesting discussion in the *Mining Journal* as to the relative advantages of the tail rope and endless rope system of haulage in collieries, and I believe the balance of opinion was in favour of the tail rope, but of course improvements in all things are being so constantly introduced that views properly entertained at one time are quite untenable ten or fifteen years afterwards. This would, I think, be found to apply in the question of tail rope and endless rope, for Messrs. Scott Brothers, the well-known wire rope manufacturers of Glasgow and Manchester, have, in conjunction with their engineer, Mr. John Gilmour, invented an improvement in haulage by endless wire ropes, which certainly seems to remove the objections which were formerly urged against that system of haulage. The nature and novelty of the invention consist in a new or improved construction of V or curved fork gripper, for gripping the wire rope on the upper end of a slightly cranked or eccentric stem, mounted in an upper and lower socket, preferably in the middle of one end of the hutch or truck, the upper socket being made with a slot to allow of the oscillation and turning of the upper eccentric end of the gripper as it approaches and recedes from the grooved guide wheel of the wire rope round which the hutch has to turn. This wheel is preferably mounted over the vehicle on the horizontal plane near the bottom of the V grippers, in a suitable standard at the corner or angle where the wire rope and hutch have to turn, the edges of the grooved pulley catching the gripper as it comes forward, and carries it round by the pressure of the rope on the fork, which, as soon as it has passed a little round the curve, allows the rope to fall into the groove of the pulley again, and as soon as the gripper has cleared the periphery of the pulley at the departing side or angle the rope itself automatically turns the eccentric gripper sufficiently to haul the hutch by the annular friction within the V forked gripper.

Not the least important part of the arrangement appears to me to be the facility which it offers for getting round short curves, as, for instance, where the trucks are coming at right angles into the main roadway. The curved rails below the wheels of the hutch or truck are made so that the inside wheel works with its rim on the inner rail right round the curve, with its flange in a groove between the rail and the deep guiding feather projecting up from the inner edge of the broad flat segmental part, while the outer wheel runs with its flange on the outer curved flat rail to raise the hutch, and assist in its safe turning round the quick curve and small rope pulley. Thus the rail proper on which the rims for the outside wheels of the truck run need not be continued round the curve, but converge down to and up from the broad segmental flat plate on which the outer wheels of the truck run, and the flanges of these wheels would be made so much larger in diameter than the rim of the wheels that the outside of the trucks or vehicles would travel so much faster than the inside, that they would be easily and automati-

cally turned by the rope and gripper round a very small curve and diameter of pulley, and which by these improvements would be effected in so small a curve or rope groove pulley as with a radius of 3 ft., when the hutch is drawn near the centre between the rails, this being preferred. But the trucks might be drawn by their side when desired, in which case the guide groove pulleys at the turnings of the rope may be smaller in diameter, and not require to be mounted over the trucks as described. Thus by these improvements the mineral trucks are automatically, safely, and steadily turned round very quick angles or curves with and by their endless hauling wire or other ropes without disengaging the rope from the improved automatic adjusting grippers and trucks, the effecting of which constitutes the purpose and the advantages of these improvements, besides saving all the time and trouble heretofore required in disengaging and recoupling the trucks at all turnings of the hauling rope.

Whilst referring to wire ropes it may be well to allude to an invention of Mr. George Dixon, of Gateshead-on-Tyne, for holding the ends of wire ropes while being tested. The apparatus for flat rope consists of a shackle made in two pieces and bolted together with their inside faces grooved longitudinally to receive two or more keys for gripping the end of the rope. These keys are notched transversely to enable them to take a firm hold of the rope, and they are formed with an incline at their back to correspond with an incline at the bottom of the grooves. The apparatus for round rope consists of a shackle through which a central cylindrical hole is bored to receive the end of the rope to be secured. This central hole is grooved longitudinally to receive the gripping keys.

When the rope is inserted in the shackle and the keys are driven in to bite the rope, the strain put on the rope will tend to draw down the keys and cause them to secure the rope more firmly in the shackle. By thus inserting the keys in guides all tendency to lateral motion in the keys caused by the torsion of the rope will be avoided, and thus the liability of the rope to slip out of the shackle will be removed.—Feb. 11.

C. F. W.

ON THE USE OF ROCK DRILLS UNDERGROUND.

SIR,—We read with interest a short article in your issue of last week, entitled "A Visit to a Rock Borer," which denotes the increasing interest in, and importance that is being attached to, the use of rock drills underground.

In the last paragraph of this article your correspondent puts the question whether it would not be possible to construct a machine to do the work of the rock drilling plant he refers to, which should be actuated by some other motive power less cumbersome and costly than the plant indispensable with the compressed air drills, and he suggests the principle of a galvanic battery. Now, although the present stage of electrical science does not lead us to anticipate that sufficient power to work such machines could be derived from the source suggested, we think it is proved that Jordan's Hand-power Rock Drill thoroughly complies with the conditions named in your article, being very portable and perfectly complete in itself, requiring no engine, boiler, compressor, or pipes in connection with it, and can be worked by perfectly unskilled labour.

These machines have now had long and severe tests in continued practical work, and are, consequently, being sold in large quantities. The mining centres on the Continent have given them very special attention, and adopted them largely for level driving, &c.; and, although as yet they have not been taken up to the same extent in this country, the home orders are gradually increasing, and now that their success is so marked, and it is to be hoped that a better state of trade may be anticipated, the inventors purpose bringing this machine more prominently before those interested in this country, and we shall presently rely on the assistance of your valuable paper to make public some valuable tabulated statistics of the working of these machines.

T. B. JORDAN, SON, AND MEIHE.

London, Feb. 11.

HAND ROCK-DRILLING MACHINERY.

SIR,—The utility of rock-drills in connection with industrial mining may now be regarded as established; but, owing to the great outlay required for air-compressing machinery and tubing, in addition to the large cost of the machines themselves, has limited their adoption to the larger and richer mines. Several hand machines have been introduced, but they have proved far from satisfactory in use underground, with the exception, perhaps, of Abegg's machine, which, however, is more applicable to moderately soft ground than to the hard ground which the miner has to deal with. For this hard ground an excellent hand machine has recently been invented and patented by Mr. JACOB FADER, of Barmen, Prussia. It can be equally well used in open quarries, railway cuttings, and mine shafts, and in general underground work, as it can be placed in a horizontal or vertical position, or at any desired angle. It is, moreover, simple, portable, and not liable to get out of repair. The drill is held in its socket by passing down a die by means of a covering plate and screw. In a similar manner the socket is connected with the driving spindle. The fly-wheel is mounted on an axle, which carries at its other end a disk provided on its face with one, two, or more cams; there is a friction pall for preventing the fly-wheel being turned the wrong way. When the disk revolves its cams act on a collar of the driving spindle, thereby lifting the latter and expanding the spring, which causes the drill to strike as soon as the collar is released. The said collar revolves on a bush, to which the spring is attached. At its other end this spring is connected to the ratchet-wheel by means of a split chuck and a band, which firmly clamps the parts of the chuck to the spring, whilst the boss of the ratchet wheel is allowed to revolve in the chuck; there is a nut consisting of two parts, which slide on tongues or in grooves of the collar, and which are besides kept in their place by screws. The parts of the nut may be pressed more or less against the thread cut on the driving spindle by means of a clamp. When this clamp is in its place and the collar lifted the nut will lift the rod with it, but if the clamp is released and drawn off from the nut halves they may be shifted apart on the collar, so that the drill can be pushed freely through the nut, which becomes necessary when a new drill is to be placed in the machine in order to avoid the slow process of turning the spindle back in the nut.

For causing the drill to revolve slightly after every stroke the end of the spindle passing through the ratchet wheel, and which is square in section, is twisted; the other end of the spindle is also square in section, but straight, and it passes through the boss of the ratchet wheel. The two ratchet wheels revolve in bearings, and are provided with spring palls, which allow them to turn in one direction only. The consequence of this arrangement is that when the spindle is lifted it will revolve within the ratchet wheel, which is prevented from turning in the opposite direction; the other end of the spindle will, however, at the same time cause the ratchet wheel to revolve with it. When the spindle is propelled the other way by spring the wheel will remain stationary; the spindle consequently, in this part of stroke, does not revolve, but it turns the wheel by means of its twisted end. The edges of the drill are thus always made to strike on other points of the hole in the rock. The advance or feed of the driving spindle is effected by the very operation of its being raised, inasmuch as by the resistance of the spring so much friction is produced between the cam and the collar that the latter, together with the nut on it, turns on the screwed part of the spindle, especially when the collar is near the end of its outward stroke. By this arrangement the friction between the cams and the collar is at the same time reduced. The screw thread on the spindle has, of course, to be cut in such a manner that by the turning of collar with nut an advance of the drill is effected. It is apparent that by suitably adjusting the pressure of the clamp on the nut parts this forward movement can easily be entirely prevented or regulated, according to desire.

The machine has already been tested in Germany, and has given the greatest satisfaction to the miners. Each pair of men would, of course, be provided with one machine, and would be responsible for keeping it in order, fair wear and tear excepted. But there is another way in which I think this machine could be introduced generally in Cornwall and Devonshire. The miners of those counties appear to be partial to the present system of payment, which boring

machines generally interfere with. I would, therefore, suggest that the work should be let at the hand price, as at present, and the machines given to the men on the hire system—that is to say, the men should purchase the machine by payment of so much per month for two years; or otherwise, that the men should pay the company so much per month for the hire of the machines, which would remain the property of the company. In either case the men would have increased inducement to work, as they would earn higher wages, although the adventurers paid but the same price per fathom, and the adventurers would be benefited, because the work would proceed at twice the speed, so the relation of fixed charges to work done would be correspondingly reduced. BERGMANN.

Feb. 12.

BONA FIDE INVESTMENTS.

SIR,—The counties of Denbigh and Flint contain a series of metallic mining districts which, owing to the similarity of their geological formations and the conditions under which the ore is produced, may be considered as one extensive group. The principal mines being the Great Miners, which upon a capital of 45,000*l.* has given its fortunate shareholders 605,116*l.* in dividends; the Westminster Mines, Llanarmon, has paid in royalty 1,000,000*l.*; Cat Hole, Gwynnynydd, Pant-y-Mwyn, and North Hendre have realised handsome profits. These lead mines are situated in the carboniferous limestone, which formation is one of the most highly mineralised in the world, and there can be no doubt that these districts are still rich in mineral, and well calculated to repay most amply a proper employment of capital, such as it appears will be brought to bear upon them when the fact becomes more generally known amongst those who are anxious to develop our home industries, that an extensive field for legitimate enterprise is at hand, one capable of almost any expansion, and whence previous adventurers have realised enormous wealth from such workings as could be prosecuted without skill and almost without effort. At a time like the present when the necessity of finding safe and remunerative investments for much surplus capital is imperative, it is a matter for congratulation to know there exists in our own country so large an opening for the advantageous outlay of money. It, therefore, affords me much pleasure to be able to announce that I have acquired a considerable tract of land on the famous Mold Mountain containing some of the richest lead ore lodes known, and will give the fullest information to capitalists willing to co-operate with me in giving a complete and energetic trial to this undertaking, which in my opinion cannot fail to prove highly remunerative. JOHN L. M. FRASER, Mining Engineer.

Hope-street, Wrexham.

ECONOMIC MINING ENTERPRISE.

SIR,—It was stated a few months since in the *Mining Journal* that some influential French capitalists had acquired some mining properties in Wales, relying upon making larger profits than usual by diminishing the agency expenses, which are inevitable when a district is cut up into a large number of small sets. There has, of course, been insufficient time for the realisation of profits, but the principle appears so sound that I think it would be much to the advantage of the mining interest generally if it were largely adopted in Cornwall. Take Carn Crea, Tincroft, East Pool, South Frances, West Frances, Cook's Kitchen, and the Bassets, and it will be found that the cost of agency in each mine represents a fair amount of dividend. Now, this being so, it does not appear to want much intelligence to calculate that if the whole were managed by one competent agent, assisted by an intelligent foreman at each mine—a man at 6*l.* per month—which is really all that is required, there would be the amount now paid as agency charges at half a dozen mines available for dividend, or at least for the more energetic development of the mines.

The difficulty of bringing about an amicable arrangement under which the whole of the mines could be worked by one company would probably be insuperable, but it would be quite easy for the several bodies of shareholders to appoint only one committeeman each—the management of the whole of mines being entrusted to the general committee thus formed, who would appoint one agent. The costs and returns of each mine would be kept separately—each committeeman's fees being charged as costs to the mine he represents, and the salary of the agents being apportioned to the several mines in proportion to the amount paid as wages. H. W.

Camborne, Feb. 12.

DISTRESS IN CORNWALL.

SIR,—There is only one cure for this, and that is the proper action of the distressed. Industry and honesty form the basis of all lasting prosperity. Cornwall has such wondrous wealth, and has such an extended sea-board, that it only wants half a chance to be prosperous. Unprincipled adventures have been its curse. Let every miner write to the papers, and contradict all reports which they know from personal acquaintance with the mine to be false. Then will deception be exposed, capital find its legitimate channel, and Cornwall flourish. Soup-kitchens are a disgrace, bolstered companies a delusion. Steady honest labour 60 hours a week will soon make Cornwall flourish. What can be done I lately saw exemplified near Roche. There by the energy and tact of one gentleman, Mr. Parkyn, of Roche, I believe, I saw some 30 or 40 hands busy as bees in the felspar quarries, where a few weeks ago there was only a desolate hill side. Let would-be philanthropists do as Mr. Parkyn has done, and let the "distressed" respond heartily, not being particular about a shower of rain or half-an-hour's overtime, and soon all will be well. D.

IS IT RIGHT TO PAY ANY PURCHASE-MONEY FOR MINES?

SIR,—Some of your correspondents who write well on mining matters have occasionally touched upon a question from a standpoint, and adduced arguments which I do not fully coincide in—I mean the payment of a sum of money for the purchase of mines. So far as I can gather their views—and I should be sorry to mistake them—they seem to make no exception, or, in other words, that a mine should be transferred without paying any substantial or large consideration to the sellers. If I am correct in so apprehending them I think there are two sides of the question, and, as when mining matters look up and trade revives (as surely they will do), it may be worth while now to discuss it. And I would here desire to express my thanks for the unrestricted manner in which you allow mining matters to be discussed in your *Journal*. For my part I cannot see what reasonable objection there can be to the payment of a purchase-money for a mine as for anything else. A royalty which has never been developed, and in which successful results are altogether problematical, might be placed in the category of those not to be paid for; but it a very different thing when we offer a mine well developed, and one where value can to a large extent be ascertained. In the view I take of the question I put aside altogether extravagant prices being paid for royalties—that is, prices which the value of the mines does not warrant a purchaser in paying; but, surely, if a mine is well developed, and the mineral is bared and visible, and large profits can be made by a purchaser upon the amount paid for a royalty and the necessary capital required for working the mine, I cannot see why a proposed equitable price should not be asked and paid—just on the same principle as is observed in the sale and purchase of any other commodity. Taking the case of a well-developed mine in which several thousands of pounds have been expended the purchaser has the full benefit of that expenditure, and can go to work with a certainty of profitable results. In all such cases a vendor has a fair right to expect to be paid for the value of the mine. I have said in former letters that the lion's share of advantage should go to the purchaser; not only to realise handsome profits, but to provide for contingencies which generally arrive in all mining operations. I think the all-important question is not that a mine should be purchased for nothing, but what is the fair and equitable amount to be paid, either in cash or shares, or both.

It may seem a large matter for a purchaser to pay 10,000*l.*, 20,000*l.*, or more for a mine; but if the mine is capable by proper management and development of yielding him a corresponding profit the amount paid does not inflict any injury on the purchaser. A virgin

royalty may be taken and a lessee may expend 20,000*l.* in opening a mine before any return can be realised; but if he pays that sum for a mine which will yield a rich and profitable return the latter operation appears to me the best.

I shall be glad to see this question discussed in a candid and dispassionate spirit. Bad as things are and gloomy as are the prospects of trade a change will come, and, perhaps, sooner than some anticipate. There is nothing at present to justify anyone in being sanguine, and there is no wisdom in hoping against hope; but a change for the better will come, and among the many elements of prosperity and trade in this country mining will again occupy a prominent position. Meanwhile, therefore, the question I have raised may be, and I hope it will be, profitably discussed.

Ulverston, Feb. 11.

WILLIAM SALMON.

DEVON GREAT CONSOLS.

SIR,—Another order has been issued to the directors of the above mines to reduce the wages of the men to a further extent of 10 per cent., equal to a month's wages less in the year, making the fifth heavy reduction during the past 18 months. The men all along have been looking forward to an increase of earnings in accordance with a promise personally made by a representative of the company that, on a demand for arsenic again arising, their hard lot should be considered, and the crushing burden under which they had so long and so patiently laboured should be lightened. For a long time past it has been observed that immense quantities of manufactured arsenic have been shipped down the Tamar from the huge bulk of this valuable commodity, said to be crammed into every available space on the mines. But instead of the pleasant realisation of wages sufficient for a comfortable livelihood, the recent edict from a board meeting held in an establishment 200 miles distant, caused the blood to curdle in the veins of the men and their families at the thought of a still greater depth of deprivation and want. The wages of the men of Devon Great Consols have all through the present depression been kept under the average of the poorest mines in the neighbourhood. How men are to exist and to render a fair day's work for the present day's wage is a mystery no one seems able to solve. It would seem just as reasonable to expect a steam-engine to work at full power and speed with half the requisite quantity of fuel. LIVE AND LET LIVE.

Calstock, Feb. 12.

MINING IN CARDIGANSHIRE.

SIR,—Referring to the remarks of "G. J." in the Supplement to last week's *Journal*, I read them with great pleasure so far as they went. The writer says that Sir Hugh Middleton had managed his own mines himself, and paid nothing to the landowners, except the royalty, I presume. I should very much like to know a little more from "G. J." as regards the better working of the said Cardiganshire mines, and whether the following specimens of managers, as they call themselves, are worthy to be called such. It is sufficient for the manager to come to the Brighton of Wales (Aberystwyth), and spend three or four days every year or two, and send for the agent to come and dine with him, and spend the evening? During this time I suppose the manager is getting the necessary information for making his report to present to the shareholders on his return to London, Glasgow, or elsewhere. Should the visit be in summer, which it is as a rule, it is said that "the mine looks better than ever, only that the late dry weather has hindered the pumping and dressing, as there is not sufficient water to go on with." If in winter, which is sometimes the case, it is the frost and snow that gets the blame. There is no talk about the spring and autumn when there is an abundant supply of water and no frost, and no extra returns made then, but all wheels and pumping and dressing going on satisfactorily. Unfortunate shareholders! is this in your minds and pockets satisfactory? I should say not. Is the capital spent as it ought to be? Would it not be better to spend it in developing the mine than in spending it as rent for large offices, directors' fees, secretary's salary, expenses, hotel bills, and first-class railway fares when a visit is made. As regards the so-called managers, what earthly good can they be? As I am certain that you will quite agree with me that you would not engage a tailor to make a pair of shoes, nor yet a blacksmith to build a house. I believe there are a great many that do not know the difference between a level and a shaft, or a cross-cut or stope, or a wheel of a barrow, or water-wheel. Having been a miner for the last 30 years I beg to offer the above remarks and queries. If intending investors would secure the services of some practical miner there would be less share jobbing, liquidations, winding-up, &c., more returns would be made, more work done for the money, the county in a better state, and everything go on as in the time of yore—happy, merry, and comfortable—no stoppages, fair wages, and plenty of work. Trusting, Mr. Editor, that I am not intruding too much on your valuable space, with your permission I will write at an early date again.—Feb. 11. MALLETT.

CARNARON BAY GRANITE SETTS QUARRY DISTRICT.

SIR,—I understand that the West Nant Quarry, which is situated within a few hundred yards of the famous Port Nant Quarries, and contains exactly the same class of stone as that obtained at the latter works, has just been disposed of to a gentleman residing within a few miles of the celebrated Mount Sorrel Granite Sett Quarries, in Leicestershire. It seems, therefore, that the various articles which have from time to time appeared in your extensively circulated *Journal* have not been without effect; and as the West Nant Quarry has been purchased by a gentleman intimately acquainted with the most ancient sett quarries (Mount Sorrel) in the kingdom, it may, I think, be taken as demonstrating the superior class of stone found in and the advantages of the Carnarvon Bay district, and the general veracity of the reports recently published in the *Journal* respecting it. The North Wales Granite Quarry incline and loading jetty, which are situated nearer Carnarvon by about six miles, are progressing very rapidly, and are expected to be completed in about five weeks, when a regular and progressive supply of setts will be brought into the market. The bottom gallery of the quarry is already 280 yards in length. It is said that some of the most energetic capitalists of Southport are associated with Mr. J. H. White in this property, and that basis has been arranged for the development of the quarries in a manner that will, it is hoped, soon entitle them to be classed with the gigantic undertaking carried on by the Welsh Granite Company (Limited) on the opposite mountain. CORRESPONDENT.

THE NATIONAL GRANITE PAVING QUARRY.

Report of Mr. T. CURRIE GREGORY, F.G.S., C.E., on the National Granite Sett Quarry.

At the end of last month I visited Carnarvon Bay with the special object of informing myself as to the geological features of the coast, and the conformation of the rocks for the carrying on of quarrying operations, for supplying tramways and the streets of towns with paving setts. My observations began about ten miles below the town of Carnarvon, near the village of Clynog, and extended about six miles to the west. I found the masses of rock to be intrusions of syenitic granite (more or less compact) through the Lower Silurian slates, forming cliffs on the sea coast at the west, and gradually trending back to the east, leaving a tract of ground gently sloping to the sea. In the distance traversed there are two quarries being vigorously worked—Port Nant and the Welsh Granite Company's property, one on the west and the latter on the east side of the Reval Mountains. At the pier of the latter I saw a steam flat and upwards of 15 vessels waiting for cargoes, confirming what I had been informed that the demand for setts far exceeds the supply. I had no means of ascertaining the exact output of this quarry, but from the information I could gather from residents in the neighbourhood it must be fully 65,000 tons per annum. On the east side of this famous quarry, on the flank of Grynndu, lies the property of the North Wales Quarry Company, who are now actively engaged in constructing incline planes to the sea, and erecting a pier for the shipping of their produce. Separated from them simply by a wall is the property which forms the proper subject of this report. It is on Tan-y-Craig Farm, in the parish of Llanaelhaearn, and is about 1½ mile west of Clynog. The portion of the ground set apart for quarrying operations is about 28 acres in extent, and consists of an imposing hill rising rapidly from the lower ground. The first gallery is 728 ft. above the sea level, and above that seven more galleries, each of 60 ft. in height, are to be formed. The slope of the hill below the first gallery is covered with masses of loose rock, which can be at once utilised in the shape of setts or macadam, and above that gallery there is actually no cover, but bare rock, which can be at once quarried and manufactured. It would be difficult to find a site more suited for speedy and economical development—in fact, as soon as inclined planes and a pier are completed the market can be supplied with stone. I examined very carefully the nature of the rock, and had several sets made while on the spot for my satisfaction. It is an open syenitic rock, similar to that of the Welsh Granite Company's stone, and although darker, in my opinion it is equally suitable as a paving material, and will not polish and get slippery like the Penmaenmawr stone. The rock can be quarried in immense blocks cheaply, and made into all the usual sizes for street kerbing, or cappings, and paving setts with

facility. It is what is commonly known as Welsh granite. Inclined planes can be made to the sea, a distance of 60 chains, and a pier made for 1500*l.* The pier will be in the same bay as that of the Welsh Granite Company's, and be protected from the prevailing south-west wind by the reval promontory. I am informed that the lease is for 21 years, renewable for a like term on payment of a fine of 500*l.* The dead rent is only 20*l.* per annum, merging into a royalty of 3*l.* per ton for setts, and the wayleave only ¼*d.* per ton. These terms are very favourable.

It will be seen from the above remarks that, in my opinion, there are unwonted facilities on this property for economical working, and from the concentration of the works I may add that a small capital would be sufficient to construct and finish the inclines, pier, and quarry, with plant and tools, open up the quarry, and bring it to a very profitable condition during the second year's development. I venture to say that a visit to the spot will satisfy anyone of the accuracy of the very favourable opinion I have expressed, to which I shall only add that, from all the attendant circumstances, this property when opened up should be able to compete successfully in prices with any in the district. T. CURRIE GREGORY, C.E., F.G.S.

HINGSTON DOWN MINE.

SIR,—A rumour is in circulation in this neighbourhood that it is the intention of the directors of this company on Saturday next—to survey day—to instruct the agent of the mine to stop the engine, and thus drown our valuable property. Such a suicidal act is almost past my belief, and I can hardly conceive that the large number of shareholders residing in and about Tavistock will calmly consent to such a proceeding. I have before me a circular sent from the London office dated only so short time back as December last, intimating that it was the determination of the shareholders to continue the vigorous working of the property, and that a call was made for the purpose. This notification of the directors was, I believe, in consequence of the unanimous determination of the shareholders at the half-yearly meeting to continue working the mine, their opinion having been invited by the directors in their report sent to us with the proceedings of the meeting. From all I can learn from practical authorities the stopping of the engine is fraught with many dangers and difficulties. Hingston is an extensive sett, and levels have been driven east and west hundreds of fathoms, and there are, perhaps, 15 to 20 winzes; and, further, that the pumps are not in very good order, the services of their engineer having been dispensed with long ago. To let the water in is the work of a very short time, but to get it out is another matter (and no doubt it will be necessary when the price of copper improves), and doubtless at a cost of many hundreds of pounds, and no one can say but what there is every chance of losing the pumping gear entirely. Surely this is a serious question, and one for the consideration of the entire body of shareholders, and not for the decision of three or four members of a committee who, I am informed, do not hold an 18th part of the mine between them. I hope the adventurers will not let this matter rest. It is evident some more able leaders are required at the head of affairs, and the sooner some action is taken in the matter the better it will be for all. I see by the Act that it requires the consent of three-fourths of the shareholders' interest to stop the concern, and this virtually is the meaning of the proposal of the directors. We have doubtless a splendid property here, and if some of the shareholders are tired of paying calls, let them retire from the concern by selling their shares. Tavistock, Feb. 13. SHAREHOLDER.

[For remainder of Original Correspondence, see to-day's *Journal*.]

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week the usual fortnightly settlement intervening has restricted business, but under the influence of the more settled aspect of Eastern politics, and the easy state of the money market, the general tendency of prices has been upwards. Particulars of the rates of continuation charged for continuing transactions to the next settlement—Feb. 27—are given below. The condition of trade remains unsullied, and though the Board of Trade Returns issued for January must have been affected by the very severe weather impeding navigation, the decrease in imports, which commenced at this time last year, continues very heavy. As the quantities have not fallen nearly so much as the values we are thus getting more for our money, but there is no advance in the values of exports such as might be expected if trade was improving.

In shares of coal and iron companies Marbella have improved 5*s.*, also Omoia and Cleland, 1*s.* 6*d.*, while Cairnstable and Chillington are both 5*s.* lower, and Benhar 3*s.* 6*d.* There has not been much business doing in Benhar, which have fluctuated between 16*s.* and 11*s.* The meeting on Tuesday, alluded to below, will probably have some effect upon the price of these shares, according as it results favourably or otherwise. The sales of the Scottish Australian for November have been 16,488 tons. Andrew Knowles and Sons are at 9*d.* Bolckow, Vaughan, A. 54 to 55; ditto, B. 31; ditto 5 per cent. pref., 19½; and ditto 5 per cent. debentures, 100; Cardiff and Swansea, 17*s.* to 20*s.*; Chapel House, 4*s.*; Chillington, 37*s.* 6*d.* to 42*s.* 6*d.*; Ebbw Vale, 70*s.* to 80*s.*; Great Western, 2; ditto, pref., 4; John Brown and Co., 21½*d.*; Mersey, 2*d.*; Muntz's Metal, 52*s.* 6*d.* prem. Nant-y-Glo and Blaina, pref., 15 to 18; Newport Abercrom, 3½ to 4; Omoia and Cleland, 5*s.* 3½; Parkgate, 24½*d.*; Pelsall, 10½*d.*; Rhymer, 13; Rotherham, Masborough, and Holmes 8 per cent. pref., 6; Sandwell Park, 14; Scottish Australian, 1½ to 1½; Sheepbridge, 4*d.*; ditto, new, 7; Silkestone and Dodworth, 36*d.*; South Wales, 3; Staveley, A. 3*d.*; ditto, B. 1½*d.*; ditto, C. 6½; and ditto, D. 10½, all ex div.; Tredegar, A. 14.

In shares of foreign copper companies, Tharsia, being oversold at the settlement, have advanced 6*s.* 3*d.*, to 22½, after having been done at 21½. Cape Copper shares are 10*s.* lower, perhaps on account of the threatening news from Zululand, as the returns for December have been good—1048 tons of 27 to 34 per cent. The advices to hand this week from the Yorke Peninsula Mine show satisfactory progress, and when the lodes are fairly laid open for working the returns of ore will be much larger. For the month to Dec. 28 the shipments were 100 tons of 17 per cent.; on hand, 121 tons of 13½ per cent., 400 tons of 5 per cent. smalls, and 1000 tons of dredge ore of 5 per cent. The reserve fund of the English and Australian Company now stands at 9958*l.*, secured by copper warrants. New Quebrada are at 1½; Panulicillo, ¾ to 1½; Rio Tinto 5 per cent., 5*s.*

There is more business doing in shares of home mines, but at lower prices. The sale of the Glasgow Caradon to take place on Feb. 20 is, computed, 190 tons copper ore, which is much the same as last month, but for several previous years, when copper was at a better price, 240 to 270 tons have been sold in the month of February. Enough shares have not been applied for yet to enable the East Roman Company to be formed, but it is expected the old shareholders will now come forward with the necessary applications, as the prospects are fairly good. A company is at present being formed to purchase and work a first-class lead property in Scotland, and it is certain there has not been a venture which will compare with this one for success for the last 20 years. The whole capital need not exceed 2000*l.*, and within three months from the time of starting machinery a profit will be made of 800*l.* to 1000*l.* per month, even at the present low price of lead. Thus, in six months time, each shareholder will be repaid whatever capital he invests, with 10 per cent. interest, and get a bonus in addition of an amount of fully paid shares equal to what he put into the concern. Bampfylde are at 6*s.*, Bedford United, 3*s.*; Cambrian, 30*s.*; Carn Brea, 99; Cook's Kitchen, 20*s.*; Drakewells, 21*s.*; Devon Great Consols, 30*s.*; Dolcoath, 24; East Caradon, 5*s.*; East Van, 32*s.* 6*d.* to 37*s.* 6*d.*; Great Laxey, 15 to 15½; Gunnislake (Clitters), 7*s.* 6*d.*; Herodford, 6*s.*; Hingston Down, 6*s.*; Killbreth, 3*s.* 9*d.*; Lead Hills, 3*s.* 9*d.*; Llanwrst, 18*s.*; Marke Valley, 7*s.*; Mellanear, 90*s.*; Phoenix United, 50*s.*; Rookhope, 4*s.* 6*d.*; South Caradon, 56*s.*; South Condurrow, 10½; South Frances, 7; Tincroft, 8½; West Basset, 45*s.*; West Chiverton, 60*s.*; West Frances, 45*s.*; West Tolgus, 33; Wheel Orebor, 6*s.* 6*d.*; Wheel Kitty (St. Agnes), 2*s.* 6*d.* to 7*s.* 6*d.*; Wheel Peevor, 7½; and Wheel Uny, 15*s.*

In shares of gold and silver mines Richmond have advanced 1*l.* (at 9¼), having fluctuated between 9 and 9½, buyers this week's run is 850,000. The produce of Don Pedro for January has been 2800 ottavas. The total quantity of quartz crushed at Port Phillip in month ending December 4 was 4776 tons; gold, 1411 ounces; and a profit of 1237*l.* At the meeting of the United Mexican Mine on February 27 a call of 2*s.* 6*d.* per share will be made, payable March 31. The adjourned meeting of Fuller's Reef was held on Tuesday. Chicago are at 10*s.* to 20*s.* Colorado United, 30*s.* Eberhardt, 7*s.* Emma, 2*s.* 6*d.* Exchequer, 4*s.* Flagstaff, 5*s.* to 7*s.* 6*d.* Frontino, 50*s.* New Zealand Kapanga, 10*s.* St. John del Rey, 21*s.* Rossa Grande, 1*s.* 3*d.* South Aurora, 2*s.* 6*d.* to 6*s.*

In shares of oil companies Omoia are 3*s.* higher, and Uphall 2*s.* 6*d.* lower. Young's Paraffin after advancing to 14½ have relapsed to last week's price—14. The Runcorn Soap and Alkali meeting was held on Monday. Price's Patent Candle shares, 9½ to 10.

In shares of miscellaneous companies business is dull. Phospho Guano shares are now dealt in ex div. at 6½ to 6¾. Cheshire Amalgamated Saltworks, 5 to 9, ex div. Liverpool Rubber, 60*s.* 6*d.* Milner's Safe, 7½. Native Guano, 60*s.* In shares of wagon companies Scottish are now quoted ex div. Birmingham are at 14. Bristol and South Wales, 6¾. Gloucester, 7½. Metropolitan, 60*s.* prem. Railway Carriage, 50*s.* Swansea, 40*s.* In shares of chemical companies Langdale's are at 8½ to 9½. Lawes, 5½ to 5¾. Newcastle, 30*s.* to 35*s.*

The following calculations show the yield per cent. on money invested at present prices in the shares named, based upon the last average yearly dividends being maintained:—In shares of coal and iron companies, Andrew Knowles and Sons would yield 13; Bolckow Vaughan, A or B, 6; Charles Cammell and Co., 9½; ditto 6 per cent. (debentures), 6; ditto 5 per cent. (debentures), 5; Henry Briggs, A, 3½; ditto, B, 3½; John Brown and Co., 7½; ditto 5 per cent. (pref.), 5; Parkgate, 4; Scottish Australian, 9½; Staveley, A, 5½; ditto, B, 5½; ditto, C or D, 5; and ditto 5 per cent. (pref.), 4½. In wagon companies shares, Birmingham would yield 10½; British, 8½; Metropolitan, 6½; Midland, 10½; North Central, 7½; Scottish, 6½; Sheffield, 7½; United States Rolling Stock, 6½; and Yorkshire, C, 7½. Glasgow Caradon Mine would yield 3½; Great Laxey, 8½; St. John del Rey, 12; Tharsia, 7½; and ditto (new), 8½. In oil companies, Oakbank would yield 8½; Uphall, 3½; and Young's Paraffin, 10. Among miscellaneous investments may be mentioned Earle's

Shipbuilding, to yield 8½; Milner's Safe, 6½; and Val de Travers Paving, 10.

BENHAR COAL COMPANY (Limited).—The petition for winding-up this company was again under the consideration of the second division of the Court of Session, on Saturday. Their lordships refused a motion to restrain diligence by creditors, and without deciding on a motion by the company for a month's delay, appointed the provisional liquidator to call a meeting of the creditors for Tuesday, to consider the question of delay, along with the proposed scheme for carrying on the company as a going concern. In the course of the proceedings counsel for the company stated that with the exception of one shareholder, who held only 100/ of stock, the resolution to carry on the concern by issuing preference stock, and by postponing payment of the debts for two years, had been agreed to by all the shareholders of 510,000/ stock. The great body of the creditors had assented to the scheme, assents having already been got from creditors representing 170,000/ out of 215,000/ of the total debt of the company.

On contingency day (Monday) the following were the rates of continuation current—Cantagos: 1d. on Benhar, 1d. on Glasgow Caradon, 1d. on Marbella, 6d. on Richmond, 7½d. on Uphall Oil. Backwardations: 1s. 6d., 2s. 6d. on Tharsis, 3s. 6d. on Young's Paraffin. On comparing the making up prices fixed to-day for the following shares with those at the previous settlement for the same shares, the variations thus shown to have occurred during the account are—Uphall Oil shares have advanced 12s. 6d.; Tharsis, 7s. 6d.; Young's Paraffin, 6s. 3d.; Benhar and Glasgow Port Washington, each 5s.; Oakbank Oil, 3s.; and Richmond, 2s. 6d. The others are unaltered—Glasgow Caradon, Huntington, Marbella, Monkland, and Tharsis (New).

CAKEMORE, CAUSEWAY GREEN, and LOWER HOLT UNITED BRICKWORKS and COLLIERY COMPANY (Limited).—A statement has been issued by this company of six weeks working results. The cost of getting the coal, including colliers' wages for breaking, and all costs of driving, weighing, trucking, and delivering the same at company's wharf, is at present 3s. 6d. per ton for lumps, which sell at 7s.; 2s. 6d. per ton for rough slack, selling at 3s. 9d. to 4s.; and 1s. 2d. per ton for fine slack, which sells at 1s. 9d. to 2s. In about six months or sooner these costs will be reduced greatly, as the present fixed charges will not require much increase to produce four times the quantity of coal. The production being then 1800 tons a week, the percentage of profits would also be increased by the larger output of lumps.

To ascertain a year's working by an estimate based upon these figures, is shown by the statement to result in a profit of 8100/ on the capital of 91,000/ after deducting a sum to form a sinking fund. Should any improvement occur in the price of coals these profits would be proportionately increased. But when the production is raised to the full capacity of the colliery, shafts and drawing machinery, (say) 3000 tons weekly, and the brickworks are finished, it is estimated further profits to the extent of 14,000/ will be made, or nearly 25 per cent in all on the company's capital. As above stated, the capital is 90,000/ divided into 24,350 ordinary 3s. shares, and 5750 preference 7½ per cent. (min.) 3s. shares.

J. GIBBY, MANAGER, Stock and Share Broker.
Post Office Buildings, Stirling, February 13.

CHEMICALS, MINERALS, and METALS.—Messrs. J. Berger Spence and Co. (Feb. 8).—Alum: Loose lump, to 4s. 2s. 6d.; ground, 4s. 10s.—Arsenic: Best white powdered, 9s.—Borax: Refined, English, 38s.—Coppers: Green, 52s. 6d.; white, 5s. 6d.—Copper: Sulphate, 18s. 1s. to 25s.—Nitrate of Lead, 31s. 6s.—Saltpetre: Refined English, 23s. 1s. to 25s.—Sulphate of Zinc, 12s. 12s. 6d.—Sulphur: Roll, 8s. 10s.; flowers, 10s. 10s.—Tin crystals, 5½d. per lb.—White Lead, 21s. to 22s.—Barytes: Carbonate, 100s.—Brimstone: Best thirds, 4s. 17s. 6d.—China Clay, 58s.—Oxide of Zinc, 22s. 10s.—Talc, 6s.—Umber, 70s.—Charcoal: Best stick, 4½d. per bushel; field burnt, 6d.—Globe Steam-Boiler Powder, 16s. per cwt.—Naphtha, 60 per cent, 3s. 6d.

Meetings of Public Companies.

MWYNDY IRON ORE COMPANY.

The annual general meeting of shareholders was held at the offices, Queen-street-place, on Wednesday.

Mr. ALEXANDER BROGDEN, M.P., in the chair.

Mr. ALKX. THOMSON (the secretary) read the notice convening the meeting. The report and accounts were taken as read.

The CHAIRMAN said he had only a few remarks to make with reference to the report and accounts, and the proceedings of the past year, and he must preface those remarks by saying there was reason for congratulation in the fact that they had got through a period of such profitless trade—especially in connection with iron and coal—with so little loss as they had done; in fact, on the working account instead of showing any loss there was an absolute and positive gain. This gain had, however, been absorbed by the interest on the debentures and loans, and the result of the year's working was, therefore, the trifling loss of 108s. 18s. 3d. But there was an explanation of this, apart from the question of the depressed condition of the iron trade and the low prices which prevailed. The rate had been so heavy that the eastern part of the Mwyndy Mine had become flooded, and the result was that some of the levels were crushed in. The expense in connection with this had been running through the entire year, and was not even now entirely finished. Their great misfortune had been the diminished consumption of ore in the iron districts of South Wales, which they mainly supplied; and, secondly, the low prices prevailing during the whole of the period under review. These were difficulties which it was impossible for the directors to regulate, and in point of fact it must be within the knowledge of every person in the country that the period of depression had been so severe, and such long, and that those who remained with their heads above water might be thankful to be in that position. The directors were obliged during the past year to take into view the financial position of the company, and the shareholders would remember a meeting was called in the middle of the year—a very unusual proceeding for them to adopt—for the purpose of consulting the shareholders with reference to the issue of debentures in order to enable them to meet the expenditure at the mines. Losses had been incurred which they were obliged temporarily to provide for, owing to the failure of the Llynvi, Tondy, and Ogmore Coal and Iron Company. He was happy to say the result of this application to the shareholders was that sufficient debentures were taken up to place the company in a sound financial position, and to enable them to pay off the loan called in by their bankers, and to make further payments on the Llynvi and Tondy properties. With respect to the Llynvi, Tondy, and Ogmore Company, it was right he should tell the shareholders that nothing had yet been done with regard to the future reorganisation or reconstruction of the company, which was being carried on by the liquidator. It had not been thought proper under the existing condition of the coal and iron trade to undertake the reconstruction of the company at present, but he was glad to say that the liquidator was carrying on the concern without making any loss, and that during the half-year he had been able to show profits were sufficient, or nearly sufficient, to pay the whole of the interest on the debentures. This gave them some ground to hope that that which now appeared as a loss to this company would ultimately prove to be not so bad as had been thought. With regard to the Mwyndy and Llynvi properties, the shareholders would have observed from the account that there had been a considerable diminution in the sales, and in the prices realised by those sales. The sales during the past year had been 32,540 tons, against 58,696 tons in the previous year; but notwithstanding that diminution they had an increase of stock in hand to the extent of about 2000 tons, which was, of course, an evidence in itself that the demand had not been active, nor could it be expected that it would be until there should be a general revival in trade. The directors had exercised what economies they could prudently exercise in reference to reduction of wages and other matters during the past year, and the net result was a diminution in the working expenses amounting to 8187/; but he was sorry to say that the diminution in the receipts was 17,044/. Of course the expenses of a smaller sale were necessarily larger per ton than they would be on an increased output, and the reopening of the crushed levels had prevented them effecting any saving in the expenses to correspond with the actual diminution in the quantity raised, nor to compensate them in any sense for the diminution in the prices realised. He had in his hand a statement showing the particular items in which the reduction expenditure had been made, and he saw that it was mainly in the items of wages and materials—such as timber and iron—the other expenses being practically on the same level as they were in the previous year. With regard to the Tondy property (the particulars of which were explained at the last annual meeting) he was glad to say that the mine had been got into such a condition that it would be able to stand on its own footing for the future. As the shareholders were aware, in past years they had charged a very large proportion of expenditure upon the Tondy property to the general revenues of the year, and last year for the first time they carried a sum to capital account on that property. During the past year—that is, until the end of June—they had considered that the expenditure on the property was fairly attributable to capital, inasmuch as they only began to raise a small quantity of ore in May, and it was thought that they could not charge the expenditure to revenue until the last half of the year. They would see the satisfactory feature noted in the accounts that the raisings in the latter part of the year—December, November, and October—very considerably exceed those in September, August, and July, and still more considerably those of the previous half-year, and from that it might be gathered that the mine was gradually developing itself, and he was proud to say that at the present time they were able to sell the ore from the Tondy property to some of their best customers at a much better price than they could obtain for the Mwyndy ore. He thought in the Tondy property they had a great feature in the future, and seeing that in the past half year it had yielded such a profit as 1377/, it might be anticipated that it would be a very considerable benefit to the company in the future. He had to mention with regret that their colleague Mr. Fletcher had during the past year felt his health to be so bad as to be obliged to give up active work, and he had gone away from the country to seek the restoration of his health in quietude and freedom from care. He was glad to say that Mr. Fletcher's friends had received a telegram stating that he had arrived in Australia safely, and in much better health. The directors had elected Mr. Mackay, Mr. Fletcher's partner, in his place, and he had the greatest confidence in recommending his re-election. It was scarcely for him to venture on anything like a prediction for the future, but he thought they might, at any rate, derive some consolation from the fact that the state of trade was so low that it could not but be expected that any change must be for the better, and when any improvement did occur their property was in a position to realise the full benefit of it. He then moved the adoption of the report and accounts.—Mr. JOSEPH FRY seconded the motion.

Mr. GIBBY asked why it was necessary that they should have six directors for such a comparatively small concern? The directors got their fees, while the shareholders were getting nothing, and he proposed that the directors should receive as remuneration until the shareholders were receiving at least 5 per cent. on their capital.—Mr. DIXON seconded the proposition.

Mr. BOWDEN said that, on receiving the report, he was gratified, knowing the depressed state of the iron trade, to find that there was no loss. The Chairman

had very prudently observed that they could not look into the future. He (the speaker) knew as much of the iron trade as most people, having been himself largely engaged in it, and looking at the iron trade, he confessed they must not be too sanguine of receiving profits for some time to come. If this company could manage to go on for a year or two without receiving any dividend, he thought the shareholders ought to be well contented, seeing that for the last 15 years they had been in receipt of dividends, and very good dividends too. He would not avert the depression which had led to the present state of things. As regarded the expenses, this company was now in the hands of gentlemen in whom the shareholders must have the fullest confidence. Mr. Bowden was largely engaged in the iron trade, which should give the shareholders a great deal of confidence that things were well managed. Messrs. Taylor and Sons were gentlemen who were thoroughly competent to carry out everything they undertook in connection with mining and business matters, and, therefore, he was fully satisfied with the management of the company, as it could not be in better hands. As regarded the debentures which had been issued to repay the loan, he did not know whether the bank would re-lend the money?—The CHAIRMAN: We do not want it.

Mr. BOWDEN said no one could complain of the moderate amount which the directors had received during the time the company had been paying dividends, but now the company was not making profits he suggested whether the directors could not see their way to make some reduction in the expenditure, either by somewhat lowering their fees or by reducing the number of directors. He thought probably they might dispense with the services of Mr. Mackay, who had taken the place of Mr. Fletcher, retired.

The CHAIRMAN said the directors' remuneration included everything which the directors received.

Mr. JOHN TAYLOR said the amount received by his firm was 150/ a year, which included the services of himself and son as engineers and general advisers.

Mr. GIBBY: It is not too much. I think you are underpaid.

Mr. JOHN TAYLOR: We are quite content.

Mr. JOHN TAYLOR said it would be a great misfortune if Mr. Mackay left the board. He was what he might call their auditor and financier. Captain Pelly also audited the accounts weekly, and looked into everything with the greatest care, and Mr. Reynolds signed the cheques, so the duties of the board were fairly divided, and he could assure the shareholders that the gentlemen at the board did their work extremely well. Whether the number was too large in these bad times was another question. He hoped they would not always have bad times, and when times became better there would be plenty to do, as there were questions of policy arising which deserved the consideration of the board.

After a further short and unimportant discussion the resolution for the adoption of the report and accounts was put, and carried.

The CHAIRMAN said the next question was that of directors' fees. He expressed his opinion that to expect gentlemen to give attention to mercantile affairs without remuneration was simply suicidal, and any person recommending the adoption of such a course would do that which would damage his own property. He pointed out that the shareholders had, on the whole, received a very satisfactory dividend on their property, and the proposition for the reduction of the directors' fees carried its own condemnation on the face of it. He was not prepared to say that circumstances might not arise when that subject might be considered. When good dividends were paid the directors never asked for additional fees. The directors met weekly, and went carefully through the business, and exercised an amount of scrutiny over the estates, the sales, and the accounts which were expected by few boards of directors. Each director in this company received 70/ per annum, which could scarcely be looked upon as remuneration, but simply as an honorarium. (Hear, hear.) He hoped no question would be raised upon the re-election of Mr. Mackay, who took the place of Mr. Fletcher, who did similar work, and whose services were of the utmost value to the company—so much so that it would be better for any director to retire rather than Mr. Mackay. He asked Mr. GIBBY whether he wished to press his resolution for a reduction of the directors' fees.

Mr. GIBBY said he had no wish to reduce the remuneration of Messrs. Taylor, but he thought some reduction should be made.

After a short discussion the CHAIRMAN said the directors did not wish to take any technical objection, but notice must be given of any intention to move for a reduction in the remuneration of the directors, and, therefore, the motion of Mr. GIBBY could not be put.

Mr. GIBBY said he was satisfied with the explanation of the Chairman. He did not want gentlemen to work for nothing, but he was simply desirous that the business should be conducted as economically as possible.

The CHAIRMAN then proposed the re-election of Mr. R. Mackay, and said he hoped that gentleman would be re-elected, as no greater misfortune could befall the company than to lose him. Mr. R. Mackay was a gentleman of great ability, and he had been very successful in the management of the company. The resolution was put and carried.

On the motion of the CHAIRMAN, seconded by Mr. DAVY, Mr. Scott was re-elected auditor, with a remuneration of 50 guineas.

A vote of thanks to the Chairman and directors closed the proceedings.

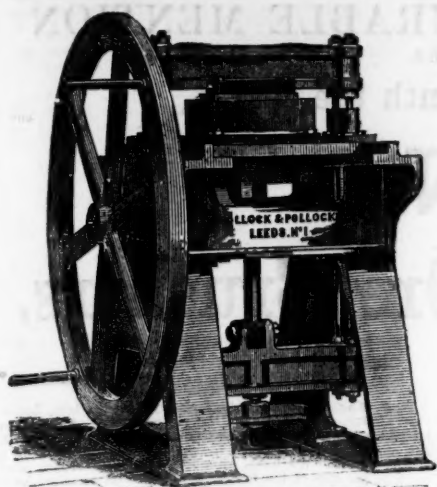
FULLER'S REEF GOLD MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Cannon-street, on Tuesday.

Mr. WITHERBY in the chair.

Mr. T. WILLIAMS (the secretary) read the notice convening the meeting. The report and accounts were taken as read.

The CHAIRMAN said: Gentlemen, I must ask you once more to remember that I am not addressing you only, but we send a report of the proceedings of this meeting to every shareholder, and, therefore, I am obliged to say rather more than I otherwise should to you on this account. This meeting was called for this day week, but in consequence of not having a quorum of shareholders present then we were obliged to adjourn until to-day. The meeting ought to have been held some time in October last, but it was deferred for several reasons, the chief one of which I shall revert to presently. You may remember that at the last meeting—that held in June last year—we said that if we could only scrape up a few hundred pounds we would send a man to the mine to give a report upon the state of the case, and what we could do. I held out very little hope then of being able to do so, but since that time we have put a little more pressure upon the shareholders, and in consequence partly of having announced that the rate of interest on the debentures would be raised to 10 per cent. we have received enough to enable us to send out this man. The shareholders, or some of them, subscribed for the purpose, and we had two or three suitable men before us, or men that we thought to be suitable. We chose Mr. Francis Fowler, M.I.C.E. He sailed on Oct. 31 for Sydney, but he had to go by rather a long way, as the steamer which he had intended to leave by had every berth engaged. He had, therefore, to go by Torres Straits, which is a longer way than the one we had heard of his arrival at Singapore, but we have not heard from him since. We were expecting to have heard from him by this time, at all events in time for the present meeting, but we have not done so yet. We had a long agreement with him which I shall be happy to read, if you wish it. This provides that he shall pay him 477/ altogether, that is to include his passage out and home, his board and lodging at the mine, and all personal expenses whatsoever; but it is not to include such things as telegrams or any expenses he might incur in our service on behalf of the mine. Out of this 477/ Mr. Fowler agreed to take a debenture for 80/, and that the rest should be paid in cash half at once and half at some future time. This agreement was drawn up without the slightest legal expense on our secretary, having had considerable experience in that way, drew it up almost, if not quite, as well as a lawyer could have done it; it is as near perfection, I think, as it can be. We also arranged with Mr. Fowler that he should, upon his arrival in Sydney, communicate with a gentleman with whom the directors had had much correspondence—a friend of one or two in the room—and that he should, as it were, make use of him for any advice or anything he may want in Sydney. The secretary also drew up a private telegraphic code in such a way that one word would mean a very long sentence, so that as soon as Mr. Fowler had made a thorough inspection of the mine, so as to satisfy himself whether it is worth working or not, he should send one or at the most two words by telegram, so that we could form an idea of the result of his inspection. We have been expecting that telegram for a fortnight, but it has not come yet; as soon as the telegram and letter which will follow with all details reach us they will be printed and circulated amongst the shareholders, and we shall then have to decide whether we shall carry on the mine or abandon it and get as much as we can for it. Mr. Fowler has been very strongly recommended to us in several quarters. His family are personally known to a very large shareholder in the company, and as far as we can tell he is a thoroughly honest and reliable man, so we may rely on him for a true and accurate account of the mine, so as to satisfy himself whether it is worth working or not, he should send one or at the most two words by telegram, so that we could form an idea of the result of his inspection. We have been expecting that telegram for a fortnight, but it has not come yet; as soon as the telegram and letter which will follow with all details reach us they will be printed and circulated amongst the shareholders, and we shall then have to decide whether we shall carry on the mine or abandon it and get as much as we can for it. Mr. Fowler has been very strongly recommended to us in several quarters. 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GOLD MEDAL—PARIS EXHIBITION,
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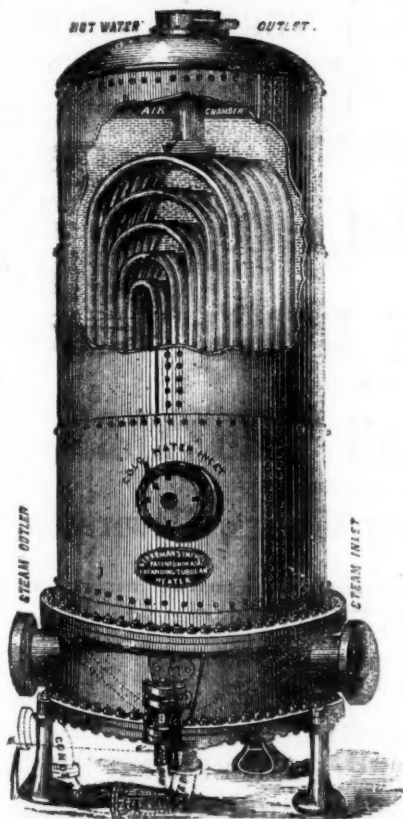
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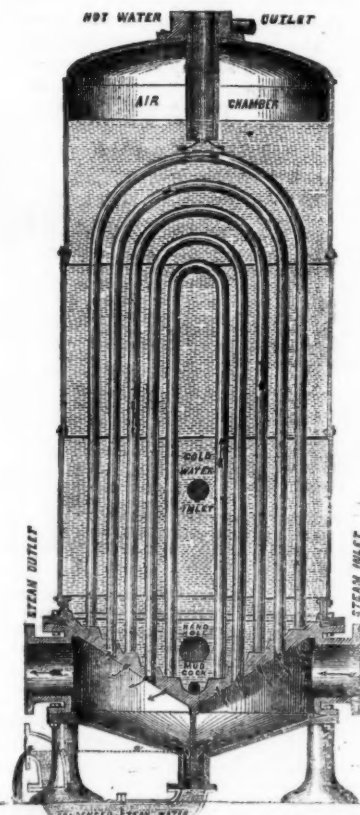
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Being the SOLE MAKERS and PATENTERS of these CELEBRATED COAL SAVERS and EXHAUST STEAM UTILISERS, and having remodelled and greatly improved them, adding largely to their HEATING SURFACE and WATER CAPACITY, J. W. and Co. have put down a special plant, which includes an entire new set of improved patterns, enabling them to offer these FEED WATER HEATERS to the public at

GREATLY REDUCED PRICES.

This arrangement of BRASS TUBES of a great length giving an enormous HEATING SURFACE makes this HEATER not only the MOST POWERFUL ever invented, but its FIRST COST PER FOOT OF HEATING SURFACE IS LESS THAN HALF THAT OF ANY OTHER. It will condense the whole of the Exhaust Steam from the Engine if required, and entirely does away with the NOISE and BACK PRESSURE from exhaust pipes.

ALL THE TUBES ARE OF SPECIALLY PREPARED SOLID DRAWN BRASS AND COPPER; both ends are expanded into the bored holes of the same Tube Plate, METAL TO METAL, and every tube is free to expand and contract independent of each other. Leakage is impossible, as, when the tubes are once fixed, nothing short of cutting out will remove them. No scurf adheres to the tubes because of the difference of expansion between SCURF and BRASS. The inside of the Heater can be washed out by means of the mud cock and hand hole whilst at work.

Only one pump or injector is required, and as the Heater is placed between the pump and the boiler, the water is forced, COLD, into it, and passes out at the top HOT into the boiler direct. Where the WATER WORKS PRESSURE is sufficient no pump or injector is needed.

The water being heated to BOILING POINT UNDER PRESSURE in the Heater, a saving of from 20 per cent. to 25 per cent. in fuel is effected; the disastrous results of grease in boilers are also avoided, the sewage and other loose matter in the water being deposited in the Heater, the acids are liberated there instead of in the boiler.

Every part can be lined with BRASS, COPPER, or LEAD, as may be required in special cases for heating water or any kind of liquor in large quantities for CHEMICAL WORKS, BATHS, WASH-HOUSES, AQUARIA, GREENHOUSES, BREWERIES, WOOL WASHING, DYE WORKS, TANNERIES, &c., &c.; they will also HEAT AIR FOR CUPOLAS AND BLAST FURNACES, and are now at work as INTERHEATERS for compound engines with direct steam from the boiler with a further saving of 15 per cent.

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Stones broken equal, and Ores better, than by hand, at one-tenth the cost.

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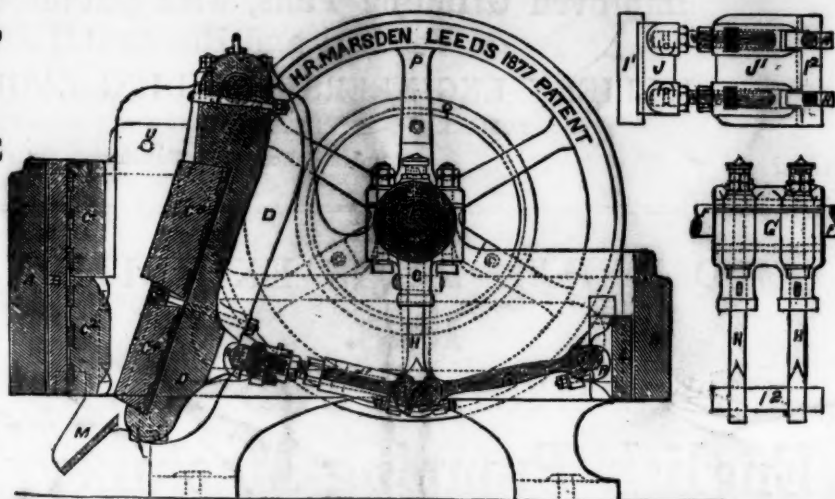
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NEW PATENT STEEL TOGGLE BEARINGS.

70

PRIZE MEDALS.



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November 7, 1878.

H. E. MARSDEN, Esq., Soho Foundry, Meadow-lane, Leeds.
DEAR SIR,—The machine I have in use is one of the large
size, 24 in. by 12 in. The quantity we are breaking daily with
this one machine is 250 tons, the jaw being set to break to a
size of 2½ in. We have, however, frequently broken over
300 tons per day of ten hours, and on several occasions over
350 tons during the same period. The stone we break is the
blue mountain limestone, and is used as a flux in the various
ironworks in this district. We have now had this machine in
daily use for over two years without repairs of any kind, and
have never had occasion to complain of any inconvenience in
using the machine. I hope the one you are now making for
me may do its work equally well. The cost—INCLUDING EX-
GINE-POWER, COALS, ENGINEMAN, FENDING, and all EXPENSES
OF EVERY KIND—is just 3d. per ton. Should any of your
friends feel desirous of seeing one of your machines at work,
I shall have much pleasure in showing the one alluded to.
I am, dear Sir, yours very truly,

WILLIAM MILLER.

AND THIS—

Wharfedale Lime Works, Aspatia, Cumberland,

July 11th, 1878.

H. R. MARSDEN, Esq., Soho Foundry, Leeds.
DEAR SIR,—We are in receipt of your letter of 4th inst. I
may just state that the stone breaker above named has been
under my personal superintendence since its erection, and I
have no hesitation in saying that it is as good now as it was
five years ago.
I am, dear Sir, yours faithfully,

FRANCIS GOULD.

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In ordinary ends two machines may be worked together,
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light, and simple, easily worked, and adapted for ends and
stopes, and the sinking of winzes and shafts.

The company are also prepared to SUPPLY COMPRESSORS,
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TIONAL EXHIBITION," in Dublin, 1865; at the "UNIVERSAL EXPOSI-
TION," in Paris, 1867; at the "GREAT INDUSTRIAL EXHIBITION," at Al-
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